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X.

DESCRIPTIONS OF SOME NEW SPECIES OF NORTH AMERICAN MOSSES.

BY LEO LESQUEREUX AND THOMAS P. JAMES.

(With a Supplement by W. P. SCHIMPER.)

Presented February 12th, 1879.

THE new species of mosses here described have been received by us from various sources since the death of Mr. Sullivan and the publication of the Supplement to the *Icones Muscorum*. On a recent visit by Mr. James to Europe, he took with him not only specimens of these species, but also of many of those recently described as new in the scientific periodicals of this country, for the purpose of critically re-examining the whole in co-operation with Professor W. P. Schimper, of Strasburg. This justly celebrated bryologist has cordially given his assistance in this review, and therefore secured to the description of our species a higher degree of authority. Our grateful acknowledgments are most cordially offered to him for this service, and also for the communication of the descriptions of some new species of American mosses prepared by himself on specimens derived from the rich and mixed materials of the well-known collections of Drummond.

SPHAGNUM GARBERI. Planta magnitudine et habitu inter *Sphagnum molle* et *Sphagnum squarrosum*, var. *squarrulosum*, ludens, viridis. Caulis mollissimus: indusium corticale e stratis 3 cellularum laxarum compositum; cylindrum internum e cellulis extus minutis intus majoribus leptodermicis omnibus hyalinis compositum.

Folia caulina mediocriter magna deltoideo-ovata, apice subcucullata et subintegra, ad angulos appendiculata integra; cellulis omnibus hyalinis majoribus, versus marginem vix angustatis, basin versus parce fibrosis nec porosis, ad apicem fibrosis et pertusis. Ramuli patentes breves vix incurvati squarrosi-foliosi, penduli parum elongati imbricato-foliosi. Folia ramulorum patentium e basi concava imbricante patula valde concava, apice truncato dentata, haud marginata, cellulis

majoribus valde fibrosis, cellulis chlorophyllosis perangustis paulum versus dorsum dispositis omnino vel fere obvelatis poris numerosis.

Flores dioici. Perichætium haud vaginans; folia ascendendo majora, subremota, subfalcata, secunda, elongato-lanceolata, valde concava, pallide viridia, mollia, laxe cellulosa, limbo latiusculo e cellulis angustis elongatis formato, cellulis hyalinis basilaribus maximis sine fibris et poris, superioribus fibrosis et parcius porosis; apice angusto eroso.

Capsulæ in eodem capitulo complures pseudopodio elongato albicante suffultæ parvulæ, rufo-brunnæ. Sporæ luteæ magnæ.

HAB. Florida (*Garber*).

In the disposition of the branches, the color of the plant, the semi-squarrose greenish leaves, and the general facies, this species is similar to *S. humile*, Schimp., as described and figured in Sullivan's *Icones*, p. 5, tab. 3. Its size is a little smaller, and the capsules longer pedicelled and also smaller. This difference is marked, and renders the species recognizable at first sight. The absence of pores in the areolæ, and the immarginate branch leaves, truncate-dentate at the apex, are also characters which separate this species from *S. humile* and related congeners.

ARCHIDIUM LONGIFOLIUM. Differt ab *Archidio alternifolio* planta tenuiore; foliis angustioribus, longioribus, anguste e lanceolato subulatis; costa superiorum in subulam lævem excedente. Antheridia 2 in foliorum perichætialium axillis.

HAB. Florida (*Garber*).

The longer narrow leaves give this moss an aspect far different from that of *A. alternifolium*, with which it is distantly comparable. The capsule and its spores have the same character.

BRUCHIA FLEXUOSA, Schwægr. Caulis semiuncialis et longior pertenuis. Folia inferiora remota, parvula, media sensim longiora, anguste lanceolato-subulata, e basi erecta patula; summa in comam suberectam conferta, e basi ovato-oblonga concava anguste lanceolato-subulata, summo apice leviter serrata; costa tenui cum vel sub apice evanida; rete basilare laxiusculum hexagono-rectangulum superius angustum.

Flos *bisexualis*. Capsula in pedicello longiore leniter curvato oblonga, longicolla (collo sporangio æquali) in rostellam producta.

HAB. On moist exposed grounds in the Southern States.

BRUCHIA SULLIVANTI, Austin. Caulis perbrevis. Folia suberecta, media e basi brevi-ovata, anguste lanceolata, summa e basi longiore

peranguste lanceolato-subulata; costa in foliis mediis sat valida, in summis ad basin concavam pertenui; reti densiore; foliis omnibus solidioribus.

Flores *monoici*, ♂ gemmiformes. Capsula brevius pedicellata brevior.

B. flexuosa, Sullivant, Icones Muscorum, p. 22, tab. 13.

HAB. On clayey soil, common.

Bruchia nigricans is separated by Austin on account of a difference in the color, larger spores, and longer pedicel. The specimens of the Musci Exsiccati were collected on the top of Raccoon Mountain, in a narrow swampy depression, which was filled with typical *B. Sullivanti*, as distributed in the Musci Exsiccati under the name of *B. flexuosa*. In the centre of the moister portion of this area, the moss was covered with confervoid filaments, which blackened the plants and so decomposed them that none of all the specimens obtained are entire. We consider therefore this form, upon which *B. nigricans* is based, as only a casual variety.

BRUCHIA BREVICOLLIS. Differt a *Bruchia Sullivanti* planta minore graciliore; foliis pro ratione longioribus, supra basin ad apicem angustioribus, longe subulatis, subula tota e costa dilatata constituta; calyptra majore infra sporangium producta; collo multo brevior angustiore; pedicello recto; sporis majoribus.

HAB. With *B. Sullivanti* in South Carolina (*Ravenel*).

This species and *Bruchia Sullivanti*, Austin, are generally found together, and are separated from *B. flexuosa*, Schwægr., especially by the monœcious inflorescence, the shorter pedicel of the capsule, and the minute spores. The author of *B. flexuosa* had not mentioned the inflorescence. The monœcious character of *B. Sullivanti* was first recognized by Sullivant, in his specification, and afterwards confirmed by James, while *B. flexuosa* is bisexual.

WEISIA LONGISETA. Plantæ magnitudine et habitu illis *Weisia viridula* similes.

Folia e basi concava oblonga pallida longe lineali-lanceolata, valde concava et margine inflexo subtubulosa, acute apiculata, viridia; costa valida ad apicem producta; reti superiore perangusto chlorophylloso, basilari laxo omnino hyalino.

Flores dioici; masculi in eadem planta complures hic illic aggregati gemmiformes, polyphylli; antheridia sat numerosa, paraphysata.

Capsula in pedicello longo subunciali pertenui subflexuoso lutescente subcernua, ovata, minuta, ferruginea, sicca deoperculata sub ore leniter constricta, longitudinaliter 8-sulcata; peristomii dentes majusculi, per-

fecti lineali-lanceolati, seu in linea divisurali usque infra medium lacunososi seu bifidi et regulariter bicrures, subramuloso-papilloso, siccitate patentes. Sporæ majusculæ ferrugineæ.

HAB. On the ground at Enterprise, Florida (*W. L. Foster*).

The pale green color of the plants, the long slender yellowish and often twisted pedicel, the curved capsule, and the large perfect teeth of the peristome give to this species the appearance of a *Dicranum*. It cannot be taken for a variety of *Weisia viridula*, Brid.

WEISIA WOLFII. Differt a *W. longiseta* foliis angustioribus pro ratione longioribus, parte superiore fere exacte tubulosis, humiditate arcuato-recurvis; capsula in pedicello brevior longior oblango-cylindrica, sicca subcylindrica, haud sulcata nec sub ore coarctata; peristomii dentibus truncatis.

Flores dioici, ut in *W. longiseta*; operculum subulirostrum.

HAB. On the ground at Canton, Illinois (*J. Wolf*).

A good species, related to *W. mucronulata*, Schimp., in the shape of its leaves. The capsule is small, rather ovate than cylindrical, the operculum long-beaked, and the pedicel flexuose or sometimes geniculate.

PTYCHOMITRIUM (NOTARISIA) PYGMÆUM. Planta perpusilla, dense foliosa, olivaceo-viridis. Folia humida patentia, sicca subcirrhata, solidiuscula, e basi ovali pallida linealia, mutica obscure viridia, medio-criter concava, lævia; costa sat longe sub apice evanida; reticulum partis superioris chlorophyllo obscuratum perangustum, basilare hyalinum areolis hexagono-rectangulis achlorophyllosis.

Flores monoici; masculi in eadem planta complures, secus femineum vel versus basin dispositi, gemmiformes, fuscescentes; antheridiis parvulis eparaphysatis.

Fructus: calyptra magna usque ad capsulæ basin producta, fusca; capsula in pedicello brevi rufo ovalis, collo tertiam partem sporangii æquante instructa; operculum in rostrum subulatum subrectum productum; annulus latus; peristomii dentes 16 subæquales, basi paria confluentes, hic illic tota longitudine connati, lineali-subulati papilloso, articulationibus parum distinctis rufi.

HAB. Near the Neosho River, Kansas, and at Bolivar, Missouri (*E. Hall*).

This species, the smallest of the genus, is distinguished by its minute size, the structure of its leaves, — areolation obscure in the upper portion and hyaline-hexagonal at the base, — and the marked neck of the capsule, extending one third its length.

FISSIDENS GARBERI. Planta minutula gregaria obliquata corticola. Folia 4–8 juga, leniter decurva, subelongato-oblonga, superiora quadruplo longiora quam lata, auricula medium circa folium attingente, ala dorsali instructa, lata, versus basin sensim angustata; lamina verticalis parte folii auriculata paululum latior, apice mutica, rarius breviter acuminata, margine papillis in quacunque cellula marginali binatis minutissime crenulata, foliorum vaginulæ circumscriptorum marginibus auriculæ e medio ad basin limbo e cellulis majusculis hexagono-rectangulis bi-triseriatis instructis; rete totius folii cæterum minutum hexagono-rotundatum distinctum.

Flos terminalis bisexualis.

Capsula in pedicello assurgente longitudinem plantæ æquante erecta vel suberecta ovalis, pallide fuscescens, ore rubro mollis; peristomii perfecti dentes e basi integra dense trabeculata rufa bicrures, cruribus lutescentibus; operculum magnum rostratum.

HAB. On the bark of trees, Florida (*Garber*).

The plants are mostly simple, rarely dichotomous. This species in the shape of its leaves resembles *F. obtusifolius*, Wils., but it is smaller, the capsule narrower, the operculum beaked, and the areolation rather quadrate than angular-rounded. No. 19 of Wright's second collection of Cuban Mosses in Sullivant's Herbarium includes many specimens (which had been examined and figured, but not named) that correspond with this species, though varying in size, and found on sticks, bark, and stones, as well as on the ground. As other Cuban mosses occur in Florida, it is not remarkable that this species also should have been collected in both localities.

FISSIDENS FLORIDANUS. Planta semiuncialis et subuncialis e basi parce ramosa, inferne fusca, superne læte viridis.

Folia e caulis basi ascendendo majora, dense conferta, superiora lineam fere longa cultriformia, auricula sat longe supra medium producta, apice subtiliter suberoso-denticulata, cæterum integra, limbo latiusculo pallido circumducta; costa sat valida paulum sub apice evanida; reticulo minuto, hexagono, in lamina verticali basi et limbo exceptis angustiore et minus distincto quam in auriculæ alis, lamina dorsali ad folii basin subito fere abrupta, sicca cirrhato-incurva.

Flores monoici; masculi in ramulis lateralibus longiusculis terminales; feminei axillares ad medium caulem dispositi.

Fructus in ramulo perichætiali perbrevis basi radicante ex eodem caule solitarius, rarius binatus; folia perichætialia caulinis pallidiora laxius texta, auricula latiore dorso usque ad medium anguste alata,

subito in laminam verticalem brevem exeuntia; capsula in pedicello semiunciali vel paulo longiore valido rubello cernua, ovali-oblonga; operculo magno longirostro.

HAB. Florida (*Garber*).

In facies, color, and in the size of the plants, this species is like the small forms of *F. osmundoides*, Hedw., to which it is also related by its monœcious terminal inflorescence. The leaves have about the same form; but they are denticulate at the apex, have a reticulation of minute hexagonal areolæ, and the lamina is surrounded with a large pellucid border. The capsule is also longer, subcylindrical, and curved.

CRYPHÆA PENDULA. Plantæ graciliores laxæ pendulæ atro-fuscæ superne tantum virentes. Caulis primarius vix ullus brevissimus; rami secundarii filiformes, simplices, medio crassiores, apice tantum divisi; ramis capillaribus, vel duobus simplicibus elongatis vel plurimis brevibus, flagellatim dispositis.

Folia siccitate imbricata apicem versus aperta, madefacta squarrosa patentia, ovata, longius acuminata, dense areolata; cellulis apicalibus minutis ovato-angulatis haud vel vix prominulis; alaribus transverse elongatis quadrangularibus seriatim distincte dispositis; costa sub medio abrupte dissoluta quandoque basi furcata brevi. Perichætalia late ovata, sub apice rotundata, breve acuminata, costa valida vel in vel sub apice evanida.

Inflorescentia generis.

Capsula ovata, brevissime pedicellata, immersa; peristomii duplicis dentibus lineali-lanceolatis; ciliis filiformibus albidis; annulo composito; operculo conico-obtusiusculo; calyptra conica integerrima.

HAB. Florida (*J. D. Smith*).

The dark color of the plants, the long flexuous slender filiform stems, rarely simple, generally forking above the middle or divided in tufts of flabellate-capillary short branches, the form and disposition of the longer leaves open or recurved at the top, the areolation, the straight conical operculum, and the entire calyptra are the essential characters which separate this species from *Cryphæa glomerata*, to which it is closely related.

HYPNUM WATSONI. Caulis erectus sat regulariter pinnato-ramulosus, ramulis approximatis.

Folia hamulato-secunda, parvula, breviuscula, e basi lata ovato-oblonga concava lanceolata et recurva plus minus longe anguste acuminata et subulata, margine integro præprimis versus apicem reflexo,

basi obsolete bicostata; reticulum pertenuae areolis perangustatis breviter vermiculatis in toto folio subæqualibus.

Flores dioici; perichætium in ramulo perichætiali perbrevis haud radicante longum vaginans; folia perichætialia interna elongato-lanceolata, subulato-acuminata, apice denticulata, tenuissima, pallida, longitudinaliter plicata, plicis angustis, reticulo laxiore tenuissimo.

Capsula leniter cernua, elongato-subcylindrica, sicca arcuata sub ore leniter constricta; operculum oblique rostratum, rostro mutico.

Color totius plantæ lutescens et fuscescens. Habitus et modus crescendi *H. Bambergeri*.

Hypnum imponens, James in Bot. King Exp. 410.

HAB. On rocks, Bear River Cañon, Uinta Mountains, Utah (*Watson*, no. 1474).

This species is comparable at first sight to some of the varieties of *H. uncinatum*, but is different from this and related congeners in its inflorescence, form, areolation of leaves, &c.

HYPNUM ALASKANUM. Differt ab *H. Schreberi* proximo gracilitate plantæ densius et regulariter pinnatæ; foliis caulinis minoribus solidioribus, apice minus late rotundatis, margine remote serratis; reticulo validiore, areolis totius folii vermicularibus et præprimis superioribus angustioribus et brevioribus; præsentia paraphylliis multifidis.

HAB. On the ground in Alaska (*W. H. Dall*).

Distinguished from *H. Schreberi* by its densely pinnated form extending the whole length of the stem, also by its broader and slightly serrated leaves and dark color.

The following descriptions, with remarks on some new American species, have been communicated by Professor Schimper:—

EPHEMERUM SPINULOSUM, Schimp. Differt a *E. crassinervio*, foliis angustioribus mollissimis versus basin ecostatis, parte superiore costa instructis lata laxa texta in aristam longam mollem circa circum hyalino-spinulosam excurrente; capsulæ membrana laxius texta.

HAB. Moist clayey grounds and on river-banks.

Schwaegrichen's *Phascum crassinervium* is a Pennsylvania 'moss, and the same as *Ephemerum crassinervium* of Sullivant's *Icones*, but not identical with *E. crassinervium*, Bryol. Eur., which is *Phascum stenophyllum*, Voit (*E. stenophyllum*, Schimper, *Synopsis*, second edition). [There is great difficulty in separating these forms, which are often found together, and so closely allied by intermediate variation that it is scarcely possible to decide which of these species is represented by the specimens. Considering merely the variations in

the leaves, a number of species could be described from single specimens taken separately for examination. L. & J.]

SYSTEGIUM ERYTHROSTEGIUM, Br. & Sch. Caulescens, parce ramosum. Folia humida patula, sicca cirrhoso-tortilia, e basi ovali anguste lanceolata, concava, margine inflexa, solide costata; perichætialia longiora, angustius acuminata.

Flores monoici; masculus in innovationibus terminalis, tandem pseudo-lateralis, gemmiformis, pentaphyllus, antheridiis brevipedicellatis, paraphysibus circiter 10 brevioribus.

Capsula immersa, in planta sicca emersa, ovalis; operculo persistente conico rufulo; pedicello capsulam æquante pallido recto exsiccatione nonnunquam curvulo.

Phascum crispum, var. *rostellatum*, Hooker & Wilson in Drummond's Musci Americani (Southern States), no. 10.

HAB. Near New Orleans.

ORTHOTRICHUM BRACHYTRICHUM, Schimp. Humile cæspitosum, cæspituli pallescente-virides, ætate fusco-luteo variegati. Planta vix semiuncialis, ramosa, tenella.

Folia ex ovato et oblongo lanceolata, superiora elongato-linealia, apiculata, lutescente-viridia, acute carinata, margine subrevoluto-reflexa, minutissime papillosa, areolis partis superioris parvulis rotundatis, basilaribus rectangulis hyalinis; costa angusta sub apice evanida.

Flores monoici; masculi in ramulis propriis ut in *Orth. pallente*, in eodem ramulo complures gemmiformes; antheridia 8–10 eparaphysata vel paraphysibus singulis.

Fructus: calyptra pallide straminea apice pilis paucis brevibus instructa. Capsula in pedicello vaginulam cylindricam nudam tubo longo auctam æquante supra folia perichætialia erecta, paulum emergens, unacum collo longiusculo subcylindrico-oblonga, lutescens, striis luteis siccitate costas efformantibus; operculum sulphureum convexum apiculatum; peristomii dentes 8, parvi, bigeminati, integri, areolis magnis punctulatis; cilia 8, dentibus æquilonga, lævia; membrana capsularis tenuis, laxè texta, reti subrectangulo tenui in striis paulum crassiore, stomatibus perpaucis magnis emersis.

O. obtusifolium, Drummond's Musci Americani (Northern States), no. 157.

HAB. On trees, from Upper Canada to the Rocky Mountains.

PLAGIOTHECIUM PSEUDO-SILESIACUM, Schimp. Monoicum. Rami subcomplanato-foliosi, foliis anticis adpressis lateralibus et posticis patentibus confertis ovatis tenui-acuminatis serratis ecostatis angus-

tissime rhomboideo-areolatis, perichæatialibus imbricatis ovato-lanceolatis. Capsula in pedicello recto subunciali obliqua vel inclinata, ovali-oblonga, leptoderma, pallide badia, siccitate longitudinaliter sulcata; annulo duplici revolubili; operculo late conico brevi.

Hypnum Silesiacum, Hooker & Wilson in Drummond's Musci Americani (Southern States), no. 111.

HAB. Near St. Louis.